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- Poisson: relatively rare, random events
- All that matters is the mean firing rate
  Each spike independent of other spikes

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- Spikes as events that have some probability
- All that matters is the mean firing rate
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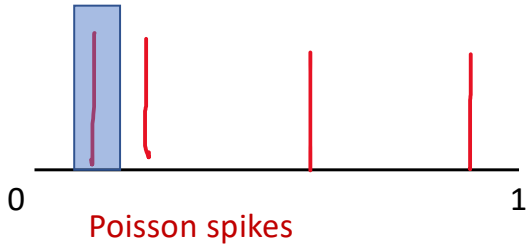
- Poisson: relatively rare, random events
- Examples? Other events modeled in similar way (traffic accidents, number of people entering a restaurant between 3-5pm; photons arriving at a space telescope)

Approach for generating Poisson spikes:



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$\Delta t = 10^{-3} msec$

Subdivide into many Δt intervals (bins)

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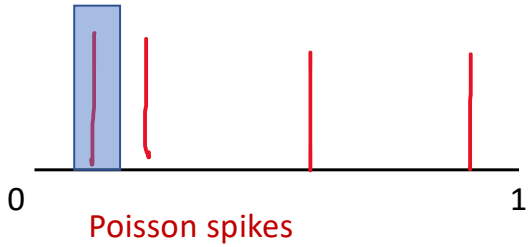

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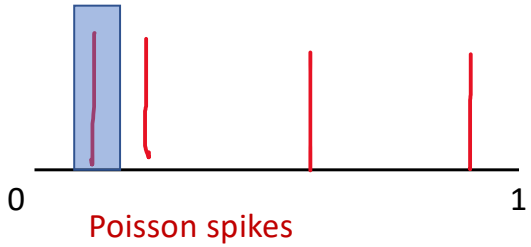

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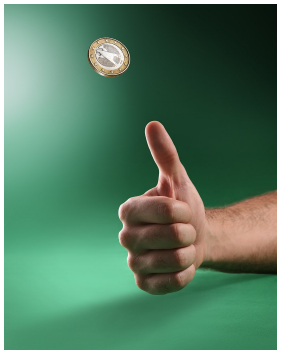

From Wikipedia

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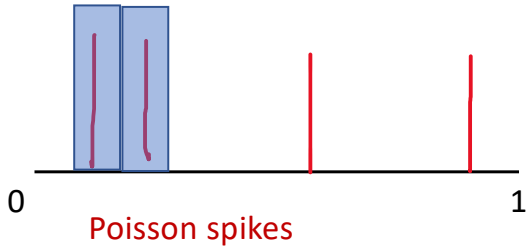

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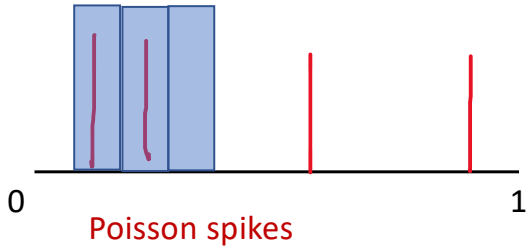

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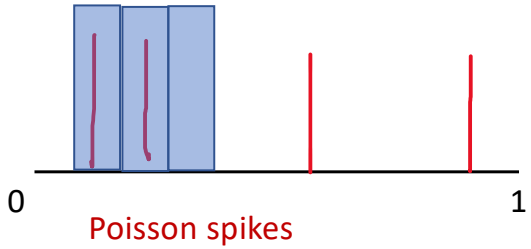

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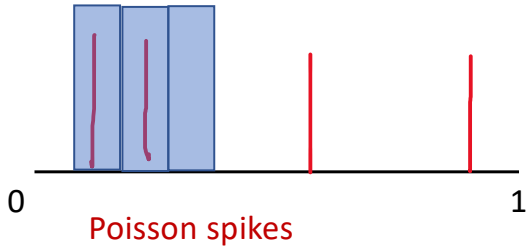

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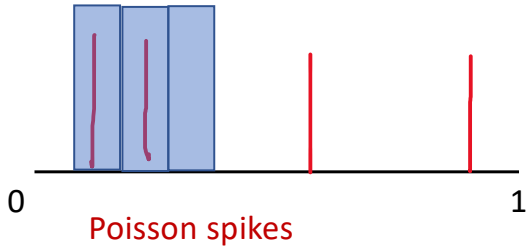
If $r\Delta t \geq rand$ generate spike

Random number uniform between 0 to 1 for each interval

Approach for generating Poisson spikes:

Example: r=10 spikes/sec

$\Delta t = 10^{-3}$ msec



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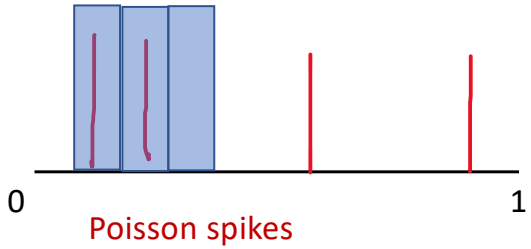

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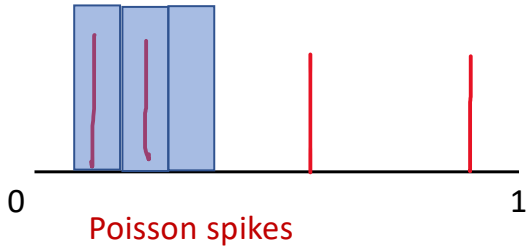

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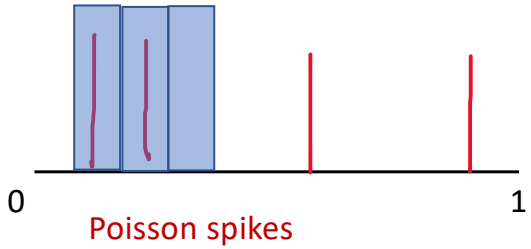

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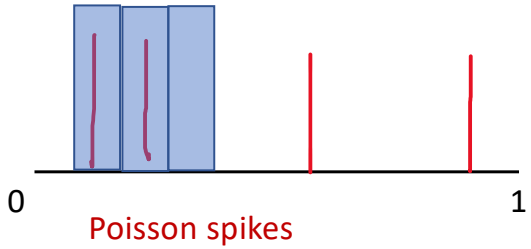

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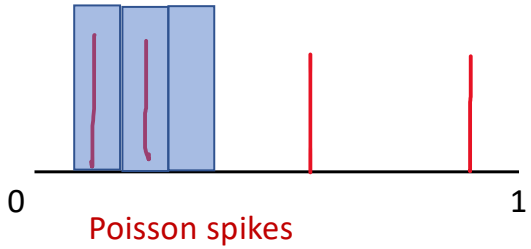

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$r\Delta t$	>=?	rand
.01		.3

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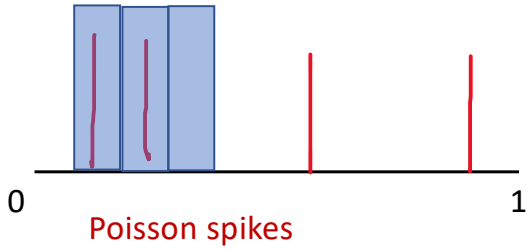

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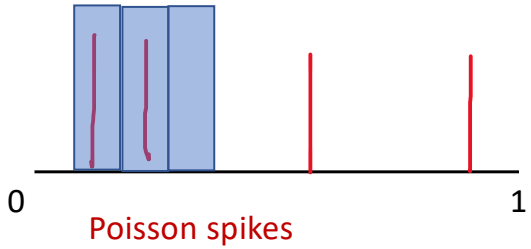

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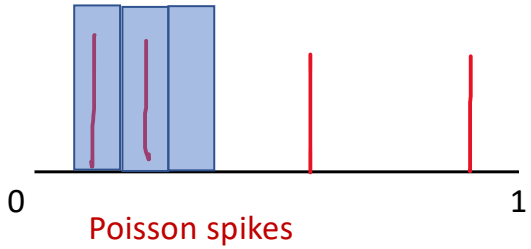

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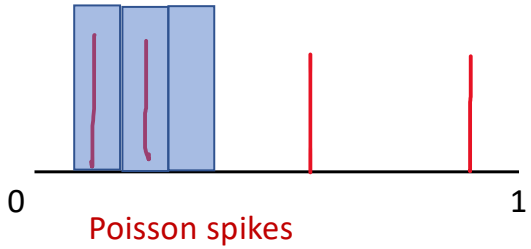

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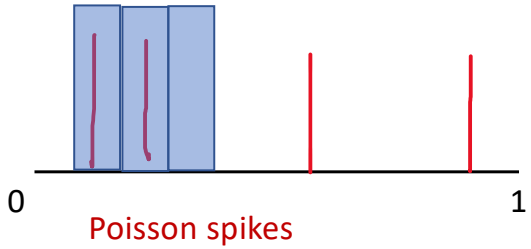

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